

The opinion in support of the decision being entered today was not written
for publication and is not binding precedent of the Board.

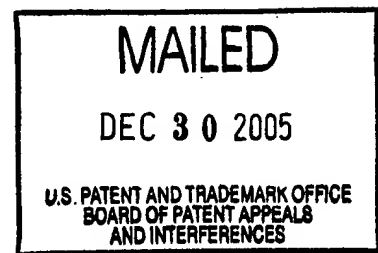
UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte KAZUAKI ANO

Appeal No. 2005-1813
Application No. 09/930,361

ON BRIEF



Before KRASS, LEVY, and MacDONALD, Administrative Patent Judges.
MacDONALD, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1-6, 8-11, and 18-
26. Claims 12-17 have been cancelled. Claim 6 is indicated as allowable?

Invention

Appellant's invention relates to a low-profile, high power semiconductor device including a plastic tape having first and second surfaces, a portion of the first surface covered with an adhesive layer. First and second openings are stamped through the tape and adhesive layer, the first openings configured for solder balls and the second openings configured to accommodate circuit chips. A copper foil is laminated on the adhesive layer, and the portion of this copper foil in the second openings is mechanically shaped into a position coplanar with the second surface, whereby it becomes useable as a chip mount pad. The circuit chips are mounted by means of a thermally conductive material on each of the chip mount pads. Encapsulating material surrounds the mounted chips.

FIG. 1 is a schematic cross section of a low profile high power ball grid array device as an embodiment of the present invention.

FIG. 2 is a magnified cross section of a portion of an actual device illustrating key features of the present invention.

FIG. 3A is a magnified top view of a portion of the mounted chip on a substrate fabricated according to the present invention.

FIG. 3B is a highly magnified top view of a portion of the mounted chip on a substrate fabricated according to the present invention.

FIG. 4 to 12 are schematic and simplified perspective views of plastic tape portions illustrating individual process steps in the fabrication flow of the reel-to-reel tape used in the assembly of the semiconductor devices according to the invention.

Claim 1 is representative of the claimed invention and is reproduced as follows:

A reel-to-reel tape, having first and second surfaces, for use in the assembly of semiconductor chips, comprising: a plurality of contact lands and a plurality of electrically conductive routing lines integral with said first surface of said tape; and a chip mount pad, secured to said first surface, coplanar with said second surface.

References

The references relied on by the Examiner are as follows:

Carter, Jr. et al. (Carter)	5,594,234	Jan. 14, 1997
Johnson	5,888,849	Mar. 30, 1999
Ikegami	6,194,781	Feb. 27, 2001
Cheng	US 2002/0066592	Jun. 06, 2002
		(filed Dec. 04, 2000)

Rejections At Issue

Claims 1-2, 4-6, and 18 stand rejected under 35 U.S.C. § 102 as being anticipated by Johnson.

Claim 3 stands rejected under 35 U.S.C. § 103 as being obvious over the combination of Johnson and Ikegami.

Claims 8-11 stand rejected under 35 U.S.C. § 103 as being obvious over the combination of Johnson and Cheng.

Claims 19-24 stand rejected under 35 U.S.C. § 103 as being obvious over the combination of Johnson and Carter.

Claims 25-26 stand rejected under 35 U.S.C. § 103 as being obvious over the combination of Johnson, Cheng and Carter.

Claim 19 stands rejected under 35 U.S.C. § 112, second paragraph.

Throughout our opinion, we make references to the Appellant's briefs, and to the Examiner's Answer for the respective details thereof.¹

¹ Appellant filed an appeal brief on October 9, 2003. Appellant filed a first reply brief on February 2, 2004. Appellant filed a second reply brief on December 6, 2004. The Examiner mailed a first Examiner's Answer on January 8, 2004. The Examiner mailed a second Examiner's Answer on November 5, 2004.

OPINION

With full consideration being given to the subject matter on appeal, the Examiner's rejections and the arguments of the Appellant and the Examiner, for the reasons stated *infra*, we reverse the Examiner's rejection of claims 1-2, 4-6, and 18 under 35 U.S.C. § 102; we reverse the Examiner's rejection of claims 3, 8-11, and 19-26 under 35 U.S.C. § 103; and we reverse the Examiner's rejection of claim 19 under 35 U.S.C. § 112.

We also use our authority under 37 CFR § 41.50(b) to enter a new grounds of rejection of claim 19. The basis for this is set forth in detail below.

Only those arguments actually made by Appellant have been considered in this decision. Arguments that Appellant could have made but chose not to make in the brief have not been considered. We deem such arguments to be waived by Appellant [see 37 CFR § 41.37(c)(1)(vii) effective September 13, 2004 replacing 37 CFR § 1.192(a)].

I. Whether the Rejection of Claims 1-2, 4-6, and 18 Under 35 U.S.C. § 102 is proper?

It is our view, after consideration of the record before us, that the disclosure of Wei does not fully meet the invention as recited in claims 1-2, 4-6, and 18. Accordingly, we reverse. For purposes of this decision we treat claim 1 as representative of claims 1-2, 4-6, and 18.

It is axiomatic that anticipation of a claim under § 102 can be found only if the prior art reference discloses every element of the claim. **See In re King**, 801 F.2d 1324, 1326, 231 USPQ 136, 138 (Fed. Cir. 1986) and **Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.**, 730 F.2d 1452, 1458, 221 USPQ 481, 485 (Fed. Cir. 1984).

With respect to independent claim 1, Appellant argues at page 4 of the brief, “Johnson does not disclose ... a chip mount pad.” The Examiner responds at page 13 of the first brief and page 13 of the second brief that “Appellant’s specification does not explicitly state any specific structural attributes that a chip mount pad must have,” and “in a broad sense, the leads of Johnson can therefore be considered chip mounts pads.” Even if we accept that Appellant’s specification does not explicitly define the structure of a chip mount pad, the Examiner has provided no basis for concluding that the leads of Johnson can therefore be considered chip mount pad. In order to determine what a person of ordinary skill in the art would understand claim terms to mean, the Examiner should point to Appellant’s disclosure and other evidence bearing on claim construction. **See Phillips v. AWH Corp.**, 75 USPQ2d 1321, 1331 (Fed. Cir. 2005). Without more, we see no basis for the conclusion reached by the Examiner. We find Appellant’s argument persuasive. We find that the Johnson reference does not teach a chip mount pad.

Therefore, we will not sustain the Examiner’s rejection under 35 U.S.C. § 102.

II. Whether the Rejection of Claims 3, 8-11, and 19-26 Under 35 U.S.C. § 103 is proper?

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the invention as set forth in claims 3, 8-11, and 19-26. Accordingly, we reverse.

In rejecting claims under 35 U.S.C. § 103, the Examiner bears the initial burden of establishing a **prima facie** case of obviousness. **In re Oetiker**, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). **See also In re Piasecki**, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984). The Examiner can satisfy this burden by showing that some objective teaching in the prior art or knowledge generally available to one of ordinary skill in the art suggests the claimed subject matter. **In re Fine**, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the Appellant. **Oetiker**, 977 F.2d at 1445, 24 USPQ2d at 1444. **See also Piasecki**, 745 F.2d at 1472, 223 USPQ at 788.

An obviousness analysis commences with a review and consideration of all the pertinent evidence and arguments. "In reviewing the [E]xaminer's decision on appeal, the Board must necessarily weigh all of the evidence and argument." **Oetiker**, 977 F.2d at 1445, 24 USPQ2d at 1444. "[T]he Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by

which the findings are deemed to support the agency's conclusion." **In re Lee**, 277 F.3d 1338, 1344, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002).

With respect to dependent claims 3, 8-11, and 19-26, we note that the Ikegami or Cheng and/or Carter references in combination with the Johnson reference fails to cure the deficiencies of Johnson noted above with respect to claim 1. Therefore, the Examiner has not met the initial burden of establishing a **prima facie** case of obviousness, and we will not sustain the Examiner's rejection under 35 U.S.C. § 103 for the same reasons as set forth above.

II. Whether the Rejection of Claim 19 Under 35 U.S.C. § 112 is proper?

It is our view, after consideration of the record before us, that claim 19 is not indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Accordingly, we reverse.

We have reviewed Appellant's claim 19 and find no indefiniteness. We readily see a structure that has encapsulant on a first surface of the substrate and the chip, but nowhere on either surface of the sheet of metal. The fact that "said portion" (including both surfaces thereof) in line 4 of claim 19 is actually disclosed as "said second surface" (of said portion) does not lead to a claim defect under 35 U.S.C. § 112, second paragraph. Rather, it leads to a defect under 35 U.S.C. § 112, first paragraph, as there is no support in the specification as originally filed for this subject matter of claim 19.

This is readily corrected by amending "said portion" to read "said second surface" as suggested by the Examiner.

Therefore, we will not sustain the Examiner's rejection under 35 U.S.C. § 112, second paragraph.

III. Rejection of Claim 19 Under 37 CFR § 41.50(b).

We make the following new grounds of rejection using our authority under 37 CFR § 41.50(b).

Claim 19 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 19, line 4, "said portion" (including both surfaces thereof) is actually disclosed as "said second surface" (of said portion). There is no support in the specification as originally filed for encapsulant that does not touch the first surface of the sheet of metal. We only find support for encapsulant that touches the second surface of the sheet of metal. This problem is readily corrected by amending "said portion" to read "said second surface."

Conclusion

In view of the foregoing discussion, we have not sustained the rejection under 35 U.S.C. § 102 of claims 1-2, 4-6, and 18; we have not sustained the rejection under 35 U.S.C. § 103 of claims 3, 8-11, and 19-26; and we have not sustained the rejection under 35 U.S.C. § 112 of claim 19.

We have entered a new grounds of rejection against claim 19 under 37 CFR § 41.50(b).

As indicated *supra*, this decision contains a new grounds of rejection pursuant to 37 CFR § 41.50(b) (effective September 13, 2004).


37 CFR § 41.50(b) provides that, “[a] new grounds of rejection pursuant to this paragraph shall not be considered final for judicial review.”

37 CFR § 41.50(b) also provides that the Appellant, **WITHIN TWO MONTHS FROM THE DATE OF THE DECISION**, must exercise one of the following two options with respect to the new grounds of rejection to avoid termination of proceedings (37 CFR § 1.197 (b) (amended effective September 13, 2004)) as to the rejected claims:

- (1) Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner ...
- (2) Request that the proceeding be reheard under 37 CFR § 41.52 by the Board upon the same record ...

REVERSED


ERROL A. KRASS)
Administrative Patent Judge)


STUART S. LEVY
Administrative Patent Judge

Allen R. MacDonald

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